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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/724,154	12/01/2003	Kohei Yoshida	117923	1598

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OLIFF & BERRIDGE, PLC
P.O. BOX 19928
ALEXANDRIA, VA 22320

EXAMINER	
TRAN, BINH Q	

ART UNIT	PAPER NUMBER
3748	

DATE MAILED: 05/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/724,154	YOSHIDA ET AL.	
	Examiner	Art Unit	
	BINH Q. TRAN	3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 December 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *12/03;01/04;04/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the ***"particulate filter"*** in claims 7, 11, and 14, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.
>
> The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-6, 8-10, 12-13, and 15-20 are rejected under 35 U.S.C. 102 (b) as being anticipated by Hirota et al. (Hirota) (Patent Number 6,233,925).

Regarding claims 1, 8, 12, 15, 18, and 20, Hirota discloses an exhaust emission control apparatus for an internal combustion engine (1) comprising: an NOx catalyst (10) disposed in an exhaust passage of said internal combustion engine; a temperature raising section for raising the temperature of said NOx catalyst (e.g. See col. 14, lines 48-67); a first reducing agent supplying section for supplying a reducing agent to said NOx catalyst when an amount of nitrogen oxides occluded in said NOx catalyst becomes more than or equal to a predetermined amount (e.g. See col. 13, lines 6-63); and a second reducing agent supplying section for supplying an amount of said reducing agent more than that supplied by said first reducing agent supplying section to said NOx catalyst before said temperature raising section is operated to raise the temperature of said NOx catalyst (e.g. See col. 15, lines 1-67; col. 16, lines 1-59).

Regarding claims 2, 9, 16, and, 19, Hirota further discloses that the nitrogen oxides reducing section comprises a reducing agent supplying section for supplying a reducing agent to said NOx catalyst (e.g. See col. 15, lines 1-67; col. 16, lines 1-59).

Regarding claims 3 and, Hirota further discloses that the reducing agent supplying section supplies said reducing agent to said NOx catalyst (10) by performing the sub-injection of fuel on at least one of an intake stroke, an expansion stroke and an exhaust stroke of said internal combustion engine (e.g. See Fig. 15; col. 15, lines 1-67; col. 16, lines 1-59).

Regarding claims 4 and, Hirota further discloses that the reducing agent supplying section supplies said reducing agent to said NOx catalyst (10) by adding said reducing agent to an exhaust from a reducing agent addition valve (e.g. 124, 126) disposed on said exhaust passage (9) of said internal combustion engine (e.g. See Figs. 17-21; col. 18, lines 56-67; cols. 19-20, lines 1-67).

Regarding claims 5, and 17, Hirota further discloses an estimating section for estimating the amount of nitrogen oxides occluded in said NOx catalyst, wherein when the amount of nitrogen oxides estimated by said estimating section is less than a predetermined amount, said nitrogen oxides reducing section does not reduce the amount of said nitrogen oxides occluded in said NOx catalyst (e.g. See Fig. 5; col. 7, lines 45-67; col. 8, lines 1-49).

Regarding claims 6, 10, and 13, Hirota further discloses that the temperature raising section raises the temperature of said NOx catalyst when poisoning of said NOx catalyst due to sulfur oxide is removed (e.g. See col. 15, lines 1-67; col. 16, lines 1-59).

Claims 1-20 are rejected under 35 U.S.C. 102 (b) as being anticipated by Hirota et al. (Hirota'791) (Patent Number 5,974,791).

Regarding claims 1, 8, 12, 15, 18, and 20, Hirota'791 discloses an exhaust emission control apparatus for an internal combustion engine (1) comprising: an NOx catalyst (e.g. 10, 53) disposed in an exhaust passage of said internal combustion engine; a temperature raising section for raising the temperature of said NOx catalyst (e.g. 10, 53) (e.g. See col. 8, lines 6-67; col. 9, lines 1-46); a first reducing agent supplying section for supplying a reducing agent to said NOx catalyst when an amount of nitrogen oxides occluded in said NOx catalyst becomes more than or equal to a predetermined amount (e.g. See col. 8, lines 6-67; col. 9, lines 1-46); and a second reducing agent supplying section for supplying an amount of said reducing agent more than that supplied by said first reducing agent supplying section to said NOx catalyst before said

temperature raising section is operated to raise the temperature of said NOx catalyst (e.g. See col. 12, lines 24-67; cols. 13-14, lines 1-67).

Regarding claims 2 and 16, Hirota'791 further discloses that the nitrogen oxides reducing section comprises a reducing agent supplying section (12) for supplying a reducing agent to said NOx catalyst (e.g. See col. 7, lines 1-42-67; col. 8, lines 1-67).

Regarding claims 3, 9, and 19, Hirota'791 further discloses that the reducing agent supplying section supplies said reducing agent to said NOx catalyst (e.g. 10, 53) by performing the sub-injection of fuel on at least one of an intake stroke, an expansion stroke and an exhaust stroke of said internal combustion engine (e.g. See col. 12, lines 24-67; cols. 13-14, lines 1-67).

Regarding claim 4, Hirota'791 further discloses that the reducing agent supplying section supplies said reducing agent to said NOx catalyst (e.g. 10, 53) by adding said reducing agent to an exhaust from a reducing agent addition valve (e.g. 12) disposed on said exhaust passage (6) of said internal combustion engine (e.g. See col. 7, lines 1-42-67; col. 8, lines 1-67).

Regarding claims 5 and 17, Hirota'791 further discloses an estimating section for estimating the amount of nitrogen oxides occluded in said NOx catalyst, wherein when the amount of nitrogen oxides estimated by said estimating section is less than a predetermined amount, said nitrogen oxides reducing section does not reduce the amount of said nitrogen oxides occluded in said NOx catalyst (e.g. See col. 10, lines 22-67; col. 11, lines 1-29).

Regarding claims 6, 10, and 13, Hirota'791 further discloses that the temperature raising section raises the temperature of said NOx catalyst when poisoning of said NOx catalyst due to sulfur oxide is removed (e.g. See col. 12, lines 24-67; cols. 13-14, lines 1-67).

Regarding claims 7, and 14, Hirota'791 further discloses that the NOx catalyst comprises: an NOx occlusive agent being operable to occlude said nitrogen oxides in an exhaust when the air fuel ratio of the exhaust flowing into the NOx catalyst is lean, and discharge the occluded nitrogen oxides when the oxygen concentration of the exhaust flowing into the NOx catalyst is reduced (e.g. See col. 10, lines 22-67; col. 11, lines 1-29); and a particulate filter (e.g. 10, 91) for collecting particulate matter in said exhaust; wherein said temperature raising section raises the temperature of said NOx catalyst when said particulate matter collected by said particulate filter is removed (e.g. See col. 12, lines 24-67; cols. 13-14, lines 1-67).

Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure and consists of five patents:

Kaneko et al. (Pat. No. 6173571), Hepburn et al. (Pat. No. 5974788), Yokota et al. (Pat. No. 6269634), Hirota et al. (Pat. No. 6502391), and Hirota et al. (Pat. No. 6367246) all discloses an exhaust gas purification for use with an internal combustion engine.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Binh Tran whose telephone number is (571) 272-4865. The examiner can normally be reached on Monday-Friday from 8:30 a.m. to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion, can be reach on (571) 272-4859. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and for After Final communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BT
May 12, 2005

Binh Q. Tran
Patent Examiner
Art Unit 3748